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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,220	10/16/2001	Tadahiko Sakai	2001_1456A	3670

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EXAMINER

ANYA, IGWE U

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/977,220

Applicant(s)

SAKAI ET AL.

Examiner

Igwe U. Anya

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 11-13 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 8, 10 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakatsuka et al. (US Patent 6280828).

3. Nakatsuka et al. teach a flexible wiring board, comprising an electrode (3) formed on a front surface of a semiconductor element (1), a reinforcement layer (4) bonded to the back surface of the semiconductor element by a resin (col. 2 line 62 – col. 3 line 10) adhesive (9). The flexural rigidity and thickness of the reinforcement layer being greater than that of the semiconductor element (col. 5 lines 10 – 41). Forming a bump on the electrode surface (col. 6 lines 58 – 67).

4. Claims 9, 12, 15, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang et al. (US Patent 6184064).

5. Jiang et al. teach a shaved back surface (104) of a semiconductor wafer (100), a reinforcement plate (144) bonded to the wafer back surface with an adhesive (146), singulating by dicing (col. 9 lines 2 – 60), and forming bumps on the electrode surface of the semiconductor (col. 10 lines 7 – 10).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuka et al. (US Patent 6280828).

9. The Nakatsuka reference teaches the features previously outlined but lacks wherein the adhesive bonds only a center of the back surface of the semiconductor element to the reinforcing member, and the reinforcing member being functions as a holding member in handling.

10. Regarding claim 3 a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). Regarding

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claim 7, a recitation with respect to the manner in which a claimed device is intended to be employed does not differentiate the claimed device from a prior art device satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

11. Claims 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuka et al. (US Patent 6280828) in view of Miyachi et al. (US Patent 6101237).

12. The Nakatsuka reference teaches the features previously outlined but lacks the outside shape of the reinforcing member being larger than that of the semiconductor element, and the reinforcement member having a recess portion to which the semiconductor element is bonded, and a projection formed at the border of the recess portion.

13. However, Miyachi et al. teach an outside shape of the reinforcing member (4) being larger than that of the semiconductor element (1), and the reinforcement member having a recess portion to which the semiconductor element is bonded, and a projection formed at the border of the recess portion (fig. 1).

14. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Miyachi et al. into the method of Nakatsuka et al. to fabricate a wiring board with a recessed portion to enhance flexibility.

15. Claims 11, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang et al. (US Patent 6184064) in view of Fujii et al. (US Patent 6429506).

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16. The Jiang et al. reference teaches the features previously outlined but lacks the step of forming diced grooves on the topside of the semiconductor, attaching a cover sheet to protect the electrode formed surface of the semiconductor, and dividing the semiconductor wafer by shaving the back surface.

17. However, Fujii et al. in figs. 11 teach forming diced grooves (6) on the topside of the semiconductor, attaching a protective sheet (63) to the electrode (21) formed on the surface of the semiconductor, and dividing the semiconductor wafer by shaving the back surface (12a).

18. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings Jiang et al. and the method of Fujii et al. to dice a wafer.

19. Claims 8, 10, and 14 are objected to as being dependent upon rejected claims, but would be allowable if rewritten in independent form.

20. Prior art considered but not used in the rejection include Finsterwald et al. (US Patent 5637800), and Haji et al. (US Patent 6350664).

21. Claims 18 and 19 are allowable, because prior art do not teach mounting a semiconductor device to a work piece by having a reinforcing element held.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Igwe U. Anya whose telephone number is (703) 308-3549. The examiner can normally be reached on M - F 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (703) 308-1323. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Igwe U. Anya
Examiner
Art Unit 2825

IA
June 1, 2003

C. Everhart
CARIDAD EVERHART
PRIMARY EXAMINER